Application No. 10/675,374
Amendment Dated March 19, 2007

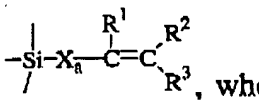
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the Application:

Listing of Claims:

Claims 1-16 (Canceled)

17. (Previously Presented) An investment casting core fabricated by the process of Claim 34.

18. (Previously Presented) The process of Claim 34, wherein the silicone monomers and/or oligomers contain an alkenyl functionality of formula:  , wherein R^1, R^2, and R^3 each independently comprise hydrogen or a monovalent hydrocarbon radical, X a divalent hydrocarbon radical and a is 0 or 1, and a hydride functionality consisting of silicon-hydrogen bonds;

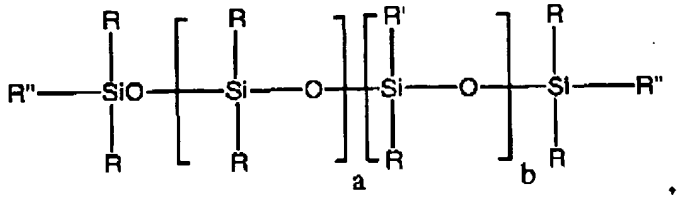
19. (Previously Presented) The process according to Claim 34, wherein the combination of the ceramic powder with the silicone monomers and/or oligomers is carried out in the absence of solvent.

20. (Previously Presented) The process according to Claim 34, wherein combining the ceramic powder with the silicone monomers and/or oligomers first comprises mixing the ceramic powder with a dispersant.

21. (Previously Presented) The process according to Claim 34, wherein cross linking and/or polymerizing the silicone monomers and/or oligomers to form the core comprises heating the ceramic slurry to an elevated temperature.

22. (Previously Presented) The process according to Claim 34, wherein the silicone monomers and/or oligomers containing the alkenyl functional group are selected from the group consisting of:

polyfunctional siloxanes of formula:



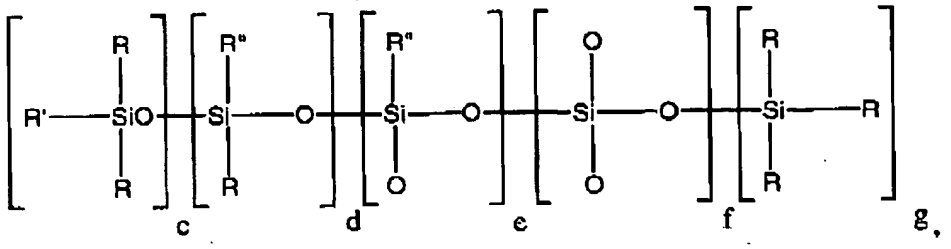
wherein R is a monovalent hydrocarbon, R' is an alkenyl radical, R" is a monovalent hydrocarbon or an alkenyl radical, $a = 0$ to 20, inclusive, and $b = 1$ to 80, inclusive, wherein a and b are selected to provide a fluid with a maximum viscosity of 1,000 centistokes,

a cyclic alkyl/alkenyl siloxane of formula:

$$[RR'SiO]_x,$$

wherein R and R' are as previously defined, and x is an integer 3 to 18 inclusive;

an unsaturated siloxane of formula:

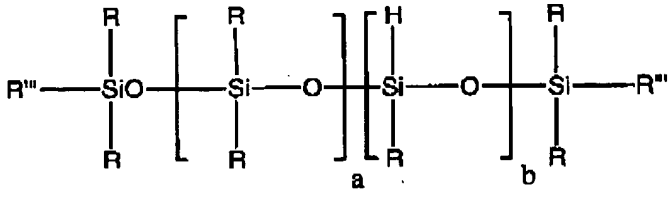


wherein R, R', and R" are as previously defined. Preferably, the ratio of the sum of (c+d+e+g)/f is ≥ 2;

and mixtures thereof.

23. (Previously Presented) The process according to Claim 34, wherein the silicone monomers and/or oligomers containing the hydride functional group are selected from the group consisting of:

a polyfunctional hydride siloxane of formula:



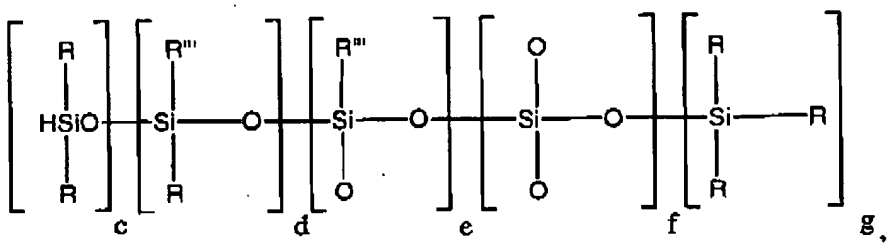
wherein R is a monovalent hydrocarbon, R"' is a monovalent hydrocarbon or hydrogen, and *a* and *b* *a* = 0 to 20, inclusive, and *b* = 1 to 80, inclusive, wherein *a* and *b* are selected to provide a fluid with maximum viscosity of 1,000 centistokes,

an alkyl/hydride cyclosiloxane of formula:

$$[HRSiO]_x,$$

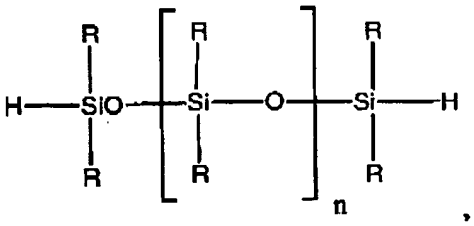
wherein x is an integer 3 to 18 inclusive,

a functional hydride siloxane of formula:



wherein a ratio of the sum of (c+d+e+g)/f is ≥ 2,

a terminal hydride siloxane of formula:



wherein n = 0 to 100, and

mixtures thereof.

24. (Previously Presented) The process according to Claim 34, wherein the catalyst comprises a platinum group metal catalyst.

25. (Canceled)

26. (Previously Presented) The process according to Claim 34, wherein the silicone monomers and/or oligomers containing the alkenyl functional group are selected from the group consisting of 1,3-divinyl-tetramethyldisiloxane, hexavinyldisiloxane, 1,3-divinyltetraphenyldisiloxane, 1,1,3-trivinyltrimethyldisiloxane, 1,3-tetravinyldimethyldisiloxane, 1,3,5-trivinyl-1,3,5-trimethylcyclotrisiloxane, 1,3,5,7-tetravinyl-1,3,5,7- tetramethylcyclotetrasiloxane, 1,3-divinyloctaphenylcyclopentasiloxane, and mixtures thereof.

27. (Previously Presented) The process according to Claim 34, wherein the silicone monomers and/or oligomers containing the hydride functional group are selected from the group consisting of poly(methylhydrogen)siloxane, poly[(methylhydrogen)-co-(dimethyl)]siloxane; 1,3,5,7-tetramethylcyclotetrasiloxane, 1,3,5,7,9-decamethylcyclopentasiloxane, cyclic methylhydrogen siloxanes; tetrakis(dimethylsiloxy)silane, hydridodimethylsiloxy silicate $[HSi(CH_3)_2O_{1/2}]_2(SiO_2)$, and mixtures thereof.

Claims 28-33. (Canceled)

Claim 34. (Currently Amended) A process for the formation of a ceramic core, comprising the following steps:

(a) combining a ceramic powder with silicone monomers and/or oligomers, to form a ceramic slurry which comprises ~~having a viscosity of about 1 to about 1,000 centistokes, and comprising~~ an uncured silicone matrix; wherein the silicone monomers and/or oligomers have a viscosity of about 1 to about 1,000 centistokes, and comprise at least three alkenyl-reactive functional groups or at least three hydride-reactive functional groups per mole of monomer or oligomer;

(b) adding a metallic catalyst to the slurry;

(c) transferring the slurry to a core mold or core die;

(d) cross-linking and/or polymerizing the silicone monomers and/or oligomers to form a green product in the shape of the desired core; and

(e) heating the green product to a temperature effective to decompose the cross-linked and/or polymerized silicone monomers and/or oligomers, and to form a ceramic core which contains a silica char, wherein the ceramic core is in the shape of at least one internal cavity of a turbine component.

Claim 35. (Canceled)

Claim 36. (Currently Amended) The process of Claim ~~35~~ 41, wherein the metallic material comprises a superalloy.

Claim 37. (Canceled)

Claim 38. (Previously Presented) The process of Claim 34, wherein at least one solvent is combined with the ceramic powder and silicone monomers and/or oligomers in step (a).

Claim 39. (Previously Presented) The process of Claim 38, wherein the green product is dried after step (d), to remove substantially all of the solvent and form a plurality of pores within the green product.

Claim 40. (Previously Presented) The process of Claim 38, wherein the green product is dried during step (d), to remove substantially all of the solvent and form a plurality of pores within the green product.

Claim 41. (New) A process for the formation of a turbine component, comprising the following steps:

(a) combining a ceramic powder with silicone monomers and/or oligomers, to form a ceramic slurry which comprises an uncured silicone matrix; wherein the silicone monomers and/or oligomers have a viscosity of about 1 to about 1,000 centistokes, and comprise at least three alkenyl-reactive functional groups or at least three hydride-reactive functional groups per mole of monomer or oligomer;

(b) adding a metallic catalyst to the slurry;

(c) transferring the slurry to a core mold or core die;

(d) cross-linking and/or polymerizing the silicone monomers and/or oligomers to form a green product in the shape of the desired core; wherein the core is in the shape of at least one internal cavity pre-selected for the turbine component;

(e) heating the green product to a temperature effective to decompose the cross-linked and/or polymerized silicone monomers and/or oligomers, and to form a ceramic core which contains a silica char;

(f) disposing the core formed in step (e) within a mold for a turbine component;

(g) introducing a turbine component-forming, molten metallic material into the mold, wherein the core is positioned in a location suitable for the formation of the desired internal cavity within the turbine component;

(h) solidifying the molten metallic material in the shape of the turbine component; and

(i) removing the core from the turbine component and separating the component from the mold.